

CLAIMS

1. A method for lamp type determination for an electronic ballast comprising:
heating a lamp filament by applying a voltage at a first frequency to the lamp filament
250;
measuring filament characteristics of the heated filament 252; and
determining lamp type from the measured filament characteristics 254.
2. The method of claim 1 comprising updating lamp operating parameters to suit the
determined lamp type.
3. The method of claim 2 wherein the lamp operating parameters are selected from the
group consisting of a dimming curve, maximum operating current, minimum operating current,
operating frequency, and operating current as a function of frequency for a given dimming level.
4. The method of claim 1 further comprising storing the determined lamp type.
5. The method of claim 1 further comprising comparing the determined lamp type to a
stored lamp type.
6. The method of claim 5 wherein the stored lamp type is selected from the group
consisting of a preceding determined lamp type and a weighted average of previously determined lamp
types.
7. The method of claim 5 further comprising re-checking the determined lamp type if the
determined lamp type is different than the stored lamp type.
8. The method of claim 1 wherein the measuring filament characteristics of the heated
filament 252 comprises:
applying the voltage at the first frequency to the lamp filament for a predetermined
time;
measuring a first filament current after the lamp filament has been heated and before
the predetermined time; and
measuring a second filament current at the predetermined time.

9. The system of claim 8 wherein the measuring a first filament current after the lamp filament has been heated and before the predetermined time comprises measuring the first filament current at about one half the predetermined time.

10. The system of claim 8 wherein the determining lamp type from the measured filament characteristics 254 comprises:

calculating a slope of a line connecting the first filament current and the second filament current as a function of time; and

comparing the slope and the second filament current to slope and current values indexed by lamp type.

11. The method of claim 1 wherein the measuring the filament characteristics of the heated filament 252 comprises:

applying the voltage at the first frequency to the lamp filament for a first predetermined time;

measuring a first filament current at the first predetermined time;

applying a second voltage at a second frequency to the lamp filament for a second predetermined time; and

measuring a second filament current at the second predetermined time.

12. The method of claim 11 wherein the determining lamp type from the measured filament characteristics 254 comprises comparing the first filament current and the second filament current to current values at different frequencies indexed by lamp type.

13. The method of claim 1 further comprising providing indication if the determined lamp type is not correct for the electronic ballast.

14. The method of claim 1 wherein the measuring filament characteristics of the heated filament 252 is performed by a method selected from the group consisting of measuring lamp filament current, measuring lamp filament resistance, and measuring lamp filament voltage.

15. A system for lamp type determination for an electronic ballast comprising:
means for heating a lamp filament by applying a voltage at a first frequency to the lamp filament;

means for measuring filament characteristics of the heated filament; and
 means for determining lamp type from the measured filament characteristics.

16. The system of claim 15 further comprising means for updating lamp operating parameters to suit the determined lamp type.

17. The system of claim 15 further comprising means for storing the determined lamp type.

18. The system of claim 15 further comprising means for comparing the determined lamp type to a stored lamp type.

19. The system of claim 15 wherein the means for measuring the filament characteristics of the heated filament comprises:

means for applying the voltage at the first frequency to the lamp filament for a predetermined time;

means for measuring a first filament current after the lamp filament has been heated and before the predetermined time; and

means for measuring a second filament current at the predetermined time.

20. The system of claim 19 wherein the means for determining lamp type from the measured filament characteristics comprises:

means for calculating a slope of a line connecting the first filament current and the second filament current as a function of time; and

means for comparing the slope and the second filament current to slope and current values indexed by lamp type.

21. The system of claim 15 wherein the means for measuring the filament characteristics of the heated filament comprises:

means for applying the voltage at the first frequency to the lamp filament for a first predetermined time;

means for measuring a first filament current at the first predetermined time;

means for applying a second voltage at a second frequency to the lamp filament for a second predetermined time; and

means for measuring a second filament current at the second predetermined time.

22. The system of claim 21 wherein the means for determining lamp type from the measured filament characteristics comprises means for comparing the first filament current and the second filament current to current values at different frequencies indexed by lamp type.

23. The system of claim 15 further comprising means for providing indication if the determined lamp type is not correct for the electronic ballast

24. An electronic ballast with lamp type determination, the electronic ballast providing power to a lamp filament, the electronic ballast comprising:

a filament current sensing circuit 138 operably connected to the lamp filament and generating a sensed filament current signal 150; and

a microprocessor 128 receiving the sensed filament current signal 150 and operably connected to control the power to the lamp filament;

wherein the microprocessor 128 is programmed to heat the lamp filament by applying the power at a first frequency, measure filament characteristics, and determine lamp type from the measured filament characteristics.

25. The electronic ballast of claim 24 wherein the microprocessor 128 is programmed to update operating parameters for the electronic ballast to suit the determined lamp type.

26. The electronic ballast of claim 24 wherein the microprocessor 128 includes memory and is programmed to store the determined lamp type in the memory.